

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-3. (canceled)

4. (currently amended) An optical characteristic measuring apparatus for measuring characteristics of devices under test having a first optical transmission line letting light through only in a first direction and a second optical transmission line letting light through only in a second direction opposite to said first direction, said apparatus comprising:

a fixed wavelength light source for generating a fixed wavelength light;

a first light modulating element for introducing into said first optical transmission line a first incident light obtained by modulating said fixed wavelength light with a first electrical signal, wherein said first incident light exits from said first optical transmission line as a first outgoing light;

a first optical/electrical converting element for converting the first outgoing light into a second electrical signal;

a variable wavelength light source for generating a variable wavelength light;

a signal source for generating a reference electrical signal;

a second light modulating element for introducing into said second optical transmission line a second incident light obtained by modulating said variable wavelength light with said reference electrical signal, wherein said second incident light exits from said second optical transmission line as a second outgoing light;

a second optical/electrical converting element for converting the second outgoing light into the first electrical signal and for outputting the first electrical signal into said first light modulating element; and

~~The optical characteristic measuring apparatus according to claim 2 comprising a third~~

optical/electrical converting element ~~[[means]]~~ for converting ~~by the optical/electrical conversion process the~~ a reflected light, which is generated when said second light modulating element ~~[[means]]~~ introduces said second incident light into said second optical transmission line, into a third electrical signal.

5. **(currently amended)** The optical characteristic measuring apparatus according to claim ~~[[1]]~~ 4, further comprising:

a phase comparing element ~~[[means]]~~ for measuring ~~[[the]]~~ a phase difference between a phase of the second electrical signal output signals for measurement outputted by said first optical/electrical converting element ~~[[means]]~~ and a phase of said reference electrical ~~signals~~ signal; and

a characteristic computing element ~~[[means]]~~ for computing ~~[[the]]~~ a group delay characteristic or [[the]] a dispersion characteristic of the devices under test by using said phase difference.

6. **(currently amended)** The optical characteristic measuring apparatus according to claim 4, further comprising:

a phase comparing element ~~[[means]]~~ for measuring ~~[[the]]~~ a phase difference between a phase of the third electrical signals signal output for reflection measurement outputted by said third optical/electrical converting element ~~[[means]]~~ and a phase of said reference electrical ~~signals~~ signal; and

a characteristic computing element ~~[[means]]~~ for computing ~~[[the]]~~ a group delay characteristic or [[the]] a dispersion characteristic of the devices under test by using said phase difference.

7-9. **(canceled)**

10. **(currently amended)** An optical characteristic measuring apparatus for measuring ~~[[the]]~~ characteristics of devices under test having ~~[[the]]~~ a first optical transmission line letting light through only in [[one]] a first direction and [[the]] a second optical transmission

line letting light through only in a second [[the]] direction opposite to said [[one]] first direction, said apparatus comprising:

~~an a~~ a first optical/electrical converting element [[means]] for converting ~~by the optical/electrical conversion process~~ an the first outgoing light, which has having penetrated and exits from said first optical transmission line, into an electrical signal;

~~a variable wavelength light source for generating a variable wavelength light, the wavelength of which is variable;~~

~~a signal source for generating a reference electrical signal signals of given frequencies;~~

~~a second light modulating element~~ [[means]] for introducing into said second optical transmission line ~~the second~~ an incident light obtained by modulating said variable wavelength light ~~with by the frequency of said reference electrical signals signal; and~~

a further optical/electrical converting element for converting a reflected light, which is generated when said light modulating element introduces said incident light into said second optical transmission line, into a further electrical signal.

**11-13. (canceled)**

14. **(currently amended)** An optical characteristic measuring method [[for]] of measuring [[the]] characteristics of devices under test having [[the]] a first optical transmission line [[for]] letting light through only in [[one]] a first direction and [[the]] a second optical transmission line [[for]] letting light through only in [[the]] a second direction opposite to said [[one]] first direction, said method comprising:

~~a fixed wavelength light generating step for generating a fixed wavelength light, the wavelength of which is fixed;~~

~~a first light modulating step for introducing into said first optical transmission line [[the]] a first incident light obtained by modulating said fixed wavelength light with a first by the frequency of the electrical signals inputted signal, wherein said first incident light exits from said first optical transmission line as a first outgoing light;~~

~~a first optical/electrical converting step for converting by the optical/electrical conversion process the first outgoing light having penetrated said first optical transmission line into a second~~

electrical signal;

~~a variable wavelength light generating step for generating a variable wavelength light, the wavelength of which is variable;~~

~~a signal generating step for generating a reference electrical signal signals of given frequencies;~~

~~a second light modulating step for introducing [[onto]] into said second optical transmission line [[the]] a second incident light obtained by modulating said variable wavelength light by the frequency of with said reference electrical signal, wherein said second incident light exits from said second optical transmission line as a second outgoing light; signals; and~~

~~a second optical/electrical converting step for converting by the optical/electrical conversion process the second outgoing light having penetrated said second optical transmission line and for outputting and using the converted second outgoing light as the first electrical signal in the onto said first light modulating step of modulating said fixed wavelength light to obtain the first incident light; and~~

~~converting a reflected light, which is generated in the step of introducing said second incident light into said second optical transmission line, into a third electrical signal.~~

**15-18. (canceled)**

19. **(currently amended)** An optical characteristic measuring method [[for]] of measuring [[the]] characteristics of devices under test having [[the]] a first optical transmission line letting light through only in [[one]] a first direction and [[the]] a second optical transmission line letting light through only in [[the]] a second direction opposite to said [[one]] first direction, said method comprising:

~~a first optical/electrical converting step for converting by the optical/electrical conversion process [[the]] a first outgoing light, which has having penetrated and exits from said first optical transmission line, into an electrical signal;~~

~~a variable wavelength light generating step for generating a variable wavelength light, the wavelength of which is variable;~~

~~a signal generating step for generating a reference electrical signal signals of given~~

frequencies;

~~a second light modulating step for introducing into said second optical transmission line the second an incident light obtained by modulating said variable wavelength light with by the frequency of said reference electrical signal; and signals~~

converting a reflected light, which is generated in the step of introducing said incident light into said second optical transmission line, into a further electrical signal.

**20-22. (canceled)**

23. **(currently amended)** A computer-readable medium having a program of instructions for execution by ~~[[the]]~~ a computer to perform an optical characteristic measuring process ~~[[for]]~~ of measuring ~~[[the]]~~ characteristics of devices under test having ~~[[the]]~~ a first optical transmission line ~~[[for]]~~ letting light through only in ~~[[one]]~~ a first direction and ~~[[the]]~~ a second optical transmission line ~~[[for]]~~ letting light through only in ~~[[the]]~~ a second direction opposite to said ~~[[one]]~~ first direction, said optical characteristic measuring process comprising:

a fixed wavelength light generating processing for generating a fixed wavelength light;  
~~the wavelength of which is fixed;~~

a first light modulating processing for introducing into said first optical transmission line ~~[[the]]~~ a first incident light obtained by modulating said fixed wavelength light with a first ~~by the frequency of the electrical signal, wherein the first incident light exits from said first optical transmission line as a first outgoing light signals inputted;~~

a first optical/electrical converting processing for converting ~~by the optical/electrical conversion process the first outgoing light into a second electrical signal having penetrated said first optical transmission line;~~

a variable wavelength light generating processing for generating a variable wavelength light;  
~~the wavelength of which is variable;~~

a signal generating processing for generating a reference electrical signal ~~signals of given frequencies;~~

a second light modulating processing for introducing ~~[[onto]]~~ into said second optical transmission line ~~[[the]]~~ a second incident light obtained by modulating said variable wavelength

light ~~with by the frequency of~~ said reference electrical signal, wherein the second incident light exits from said second optical transmission line as a second outgoing light; ~~signals; and~~

a second optical/electrical converting processing for converting ~~by the optical/electrical conversion process~~ the second outgoing light ~~having penetrated said second optical transmission line and for outputting~~ and using the converted second outgoing light as the first electrical signal in ~~[[onto]]~~ said first light modulating processing; and

a third optical/electrical converting processing for converting a reflected light, which is generated when said second incident light is introduced into said second optical transmission line, into a third electrical signal.

**24-27. (canceled)**

28. **(currently amended)** A computer-readable medium having a program of instructions for execution by ~~[[the]]~~ a computer to perform an optical characteristic measuring process ~~[[for]]~~ of measuring ~~[[the]]~~ characteristics of devices under test having ~~[[the]]~~ a first optical transmission line letting light through only in ~~[[one]]~~ a first direction and ~~[[the]]~~ a second optical transmission line letting light through only in ~~[[the]]~~ a second direction opposite to said ~~[[one]]~~ first direction, said optical characteristic measuring process comprising:

an a first optical/electrical converting processing for converting by the optical/electrical conversion process ~~[[the]]~~ a first outgoing light, which has having penetrated and exits from said first optical transmission line, into an electrical signal;

a variable wavelength light generating processing for generating a variable wavelength light, ~~the wavelength of which is variable~~;

a signal generating processing for generating a reference electrical signal ~~signals of given frequencies~~;

a ~~second~~ light modulating processing for introducing into said second optical transmission line ~~the second~~ an incident light obtained by modulating said variable wavelength light ~~with by the frequency of~~ said reference electrical signal; and signals

a further optical/electrical converting processing for converting a reflected light, which is generated when said incident light is introduced into said second optical transmission line, into a

further electrical signal.

**29-30. (canceled)**

31. (new) An optical characteristic measuring apparatus for measuring characteristics of devices under test having a first optical transmission line letting light through only in a first direction and a second optical transmission line letting light through only in a second direction opposite to said first direction, said apparatus comprising:

a fixed wavelength light source for generating a fixed wavelength light;

first light modulating means for introducing into said first optical transmission line a first incident light obtained by modulating said fixed wavelength light with a frequency of a first electrical signal, wherein said first incident light exits from said first optical transmission line as a first outgoing light;

first optical/electrical converting means for converting, by a first optical/electrical conversion process, the first outgoing light into a second electrical signal;

a variable wavelength light source for generating a variable wavelength light;

a signal source for generating a reference electrical signal;

second light modulating means for introducing into said second optical transmission line a second incident light obtained by modulating said variable wavelength light with said reference electrical signal, wherein said second incident light exits from said second optical transmission line as a second outgoing light;

second optical/electrical converting means for converting, by a second optical/electrical conversion process, the second outgoing light into the first electrical signal and for outputting the first electrical signal into said first light modulating means; and

third optical/electrical converting means for converting, by a third optical/electrical conversion process, a reflected light, which is generated when said second light modulating means introduces said second incident light into said second optical transmission line, into a third electrical signal.

32. (new) An optical characteristic measuring apparatus for measuring

characteristics of devices under test having a first optical transmission line letting light through only in a first direction and a second optical transmission line letting light through only in a second direction opposite to said first direction, said apparatus comprising:

optical/electrical converting means for converting, by an optical/electrical conversion process, an outgoing light, which has penetrated and exits from said first optical transmission line, into an electrical signal;

a variable wavelength light source for generating a variable wavelength light;

a signal source for generating a reference electrical signal;

light modulating means for introducing into said second optical transmission line an incident light obtained by modulating said variable wavelength light with said reference electrical signal; and

further optical/electrical converting means for converting, by a further optical/electrical conversion process, a reflected light, which is generated when said light modulating means introduces said incident light into said second optical transmission line, into a further electrical signal.

33. (new) The optical characteristic measuring apparatus according to claim 31, further comprising:

phase comparing means for measuring a phase difference between a phase of the second electrical signal output by said first optical/electrical converting means and a phase of said reference electrical signal; and

characteristic computing means for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

34. (new) The optical characteristic measuring apparatus according to claim 31, further comprising:

phase comparing means for measuring a phase difference between a phase of the third electrical signal output by said third optical/electrical converting means and a phase of said reference electrical signal; and

characteristic computing means for computing a group delay characteristic or a



dispersion characteristic of the devices under test by using said phase difference.

35. (new) The optical characteristic measuring apparatus according to claim 32, further comprising:

phase comparing means for measuring a phase difference between a phase of the electrical signal output by said optical/electrical converting means and a phase of said reference electrical signal; and

characteristic computing means for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

36. (new) The optical characteristic measuring apparatus according to claim 32, further comprising:

phase comparing means for measuring a phase difference between a phase of the further electrical signal output by said further optical/electrical converting means and a phase of said reference electrical signal; and

characteristic computing means for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

37. (new) The optical characteristic measuring apparatus according to claim 10, further comprising:

a phase comparing element for measuring a phase difference between a phase of the electrical signal output by said optical/electrical converting element and a phase of said reference electrical signal; and

characteristic computing element for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

38. (new) The optical characteristic measuring apparatus according to claim 10, further comprising:

phase comparing element for measuring a phase difference between a phase of the further electrical signal output by said further optical/electrical converting element and a phase of said

reference electrical signal; and

characteristic computing element for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

39. (new) The method according to claim 14, further comprising:

measuring a phase difference between a phase of the second electrical signal and a phase of said reference electrical signal; and

computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

40. (new) The method according to claim 14, further comprising:

measuring a phase difference between a phase of the third electrical signal and a phase of said reference electrical signal; and

computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

41. (new) The method according to claim 19, further comprising:

measuring a phase difference between a phase of the electrical signal and a phase of said reference electrical signal; and

computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

42. (new) The method according to claim 19, further comprising:

measuring a phase difference between a phase of the further electrical signal and a phase of said reference electrical signal; and

computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

43. (new) The computer-readable medium according to claim 23, wherein said optical characteristic measuring process further comprises:

a phase comparing processing for measuring a phase difference between a phase of the second electrical signal and a phase of said reference electrical signal; and

a characteristic computing processing for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

44. (new) The computer-readable medium according to claim 23, wherein said optical characteristic measuring process further comprises:

a phase comparing processing for measuring a phase difference between a phase of the third electrical signal and a phase of said reference electrical signal; and

a characteristic computing processing for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

45. (new) The computer-readable medium according to claim 28, wherein said optical characteristic measuring process further comprises:

a phase comparing processing for measuring a phase difference between a phase of the electrical signal and a phase of said reference electrical signal; and

a characteristic computing processing for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.

46. (new) The computer-readable medium according to claim 28, wherein said optical characteristic measuring process further comprises:

a phase comparing processing for measuring a phase difference between a phase of the further electrical signal and a phase of said reference electrical signal; and

a characteristic computing processing for computing a group delay characteristic or a dispersion characteristic of the devices under test by using said phase difference.